

CITY ENGINEER'S POLICY MEMORANDUM

Guidelines and Standards for New Streets and Frontage Improvements in the Urbanizing Rural Fringe and Transition Neighborhoods

Effective February 1, 2005

Background

The City of Lake Oswego has been responding to an accelerating rate of requests for annexation. More often than not, the annexations are prompted by property owners' desires to develop their property to the density permitted by the City's urban zoning regulations as opposed to the density that would be allowed in the unincorporated county. An urban level of development requires an urban level of supporting infrastructure, and often requires the construction of new streets or improvement to existing streets. The City has obtained citizen input from community surveys and other forms of public testimony indicating that the preservation of the rural character of certain areas in the City's urbanizable fringe and its newly annexed territory ought to be given high priority when considering new street construction or improvements to existing roadways.

Authority

Lake Oswego Code Chapter 42 (Streets and Sidewalks) adopts general and specific standards for the various functional street classifications, and further subjects the design and construction details for street and storm drainage improvements to the City Engineer's approval. This authority is broadly interpreted to include all uses and improvements within the public right of way, including streetscape improvements and aesthetic character.

Purpose

The purpose of this policy memorandum is threefold:

- 1) To establish design guidelines for new streets, and improvements to existing streets, within the urbanizing fringe and newly annexed territories. Adhering to the design guidelines will generate site-specific construction details that will be subject the City Engineer's approval on a case-by-case basis.
- 2) To establish uniform standards for certain improvements where uniformity and consistent application is in the best interest of the general public health and welfare.
- 3) To implement the City's policy on sustainable development, with particular emphasis on how the "green street" movement relates to sustainability goals.

Applicability

These guidelines and standards are to be applied to capital improvement projects and private development projects when new streets are proposed, and when improvements to existing streets are

proposed or required as conditions of development approval. They have been developed in response to increasing development pressure along Knaus Road and Goodall Road in the Forest Highlands neighborhood, but are also intended to be applied in other transitioning neighborhoods such as the Rosewood, Lake Forest, Childs, and Stafford-Tualatin neighborhoods. Readers are also directed to obtain further guidance from adopted neighborhood plans when designing new streets and improvements to existing streets.

Street Design and Associated Landscape Elements

A common thread running throughout the transitioning neighborhoods and newly annexed areas is the residents' desire to maintain an unobtrusive, rural street character. At the same time, residents are voicing a need to accommodate bicyclists and pedestrians. These objectives are best achieved by avoiding certain conventional streetscape design elements in favor of others. In this regard, it is useful to contrast the distinguishing elements of the fully urbanized streetscape environment with their more rural counterparts.

Conventional Urban elements

Hard edges
Straight lines
More people
Man-made domination
High percentage of hard surface
Gray concrete
Curbs, gutters, piped drainage
Mechanical noise, reverberations
Abundant street lighting the norm
Wide roads to accommodate parking
Closely spaced, wider driveway approaches
Curb tight sidewalks
Small, "horticultural" street trees
Discontinuous sidewalk system in the suburbs; lack of pedestrian amenities

Desired transitional/rural elements

Soft, blurred edges
Irregular or curved lines
Fewer people, more wildlife habitat
Blend of raw nature and agriculture
Permeable, soft surfaces
Foliage and earth tones
Visible surface water drainways
Intermittent traffic noise, diffused nature sounds
Street lighting used judiciously, dark sky valued
Narrower roads
Infrequent, narrow driveways
Pathways and trails
Large native or naturalized specimens with understory
Logical, continuous pathway/trail system; resting places and viewpoints

Once we recognize what we value in the rural landscape and in the older transitioning neighborhoods, our guidelines and standards should lead us to preserve the valued qualities where they exist, and to create them when the opportunity arises.

The Design Process

Those charged with the task of designing new streets or improvements to existing streets shall begin by identifying existing desirable characteristics that ought to be preserved or enhanced, and identifying the shortcomings and constraints. As streets transition from one neighborhood to another and from one functional classification to another, street design elements are expected to complement a host of surrounding variable conditions. The designer must not only be cognizant of the existing variables, but must also consider the evolution of these variables as the surrounding territory becomes more densely populated over time. Examples of existing and future variables that influence the streetscape environment as a whole are:

- Adjacent development, such as residential structures of varying age, design, and spacing, together with their mixture of landscaping styles.
- Drainage conditions, ranging from a total lack of drainage facilities to the narrow, deep drainage ditch that typifies rural roads.
- Existing vegetation along the road, ranging from manicured lawns and shrubs, to heritage trees, to untended patches of native or invasive species.
- Topographic constraints, such as steep slopes in or adjacent to the right of way, rock outcroppings, the presence of stream banks, wetlands, or other protected areas.
- Utility poles, hydrants, mailboxes, etc.
- Existing or planned frequency of driveway approaches.
- Functional classification of the street, geometric considerations, and safety history.

Design Guidelines and Standards

The following guidelines and standards are intended to clarify and, in some cases, augment the general and specific standards found in LOC Chapter 42. They are to be used in conjunction with the City's Drainage Design Manual, Standard Details and Specifications, and adopted master plans and neighborhood plans.

Pavement width:

Pavement widths will vary and will be determined on a case-by-case basis after a detailed analysis of a number of factors. For example, planned bike lanes and pathways will influence the pavement width on arterials and collectors. Local street widths will vary according to the intensity of the development, the need to accommodate visitor parking, and the need for prompt and efficient delivery of emergency services. [Note: The City Charter requires that an existing roadway that is widened over a finished width of 20' within the City limits requires public notice. If the City receives a petition containing 25 or more signatures of registered voters who object to the widening, the issue must be put to the voters on a city-wide ballot and approved by the voters before the widening may occur. County roads are exempt from this provision while they remain outside the city limits.]

Pathway width and alignment:

Separated pathways will be 6' wide and generally paved with asphaltic concrete. Other materials, such as soft pathways, bridges and boardwalks may be used in especially sensitive environmental protection areas. Where pathways are being constructed as part of a development and must meander to avoid a tree or trees growing near the shoulder of the road, the pathway shall be designed to meander behind the tree rather than hug the edge of roadway. The alignment shall take the tree's health and mature trunk diameter into account. When the right of way is insufficient to permit such a meander, an easement may be required on the abutting property.

Lighting:

New lighting shall be limited to intersections or other places where pedestrians are expected to cross, and in locations where lighting is specifically required to mitigate a hazard, e.g., a sag vertical curve that cannot be adequately illuminated by headlights. Full cut-off luminaries shall be utilized to reduce light trespass and sky glow. As of this date, the style of luminaire has not been determined.

Crosswalks:

Crosswalks will incorporate design elements to enhance their visibility under all driving conditions, such as bold striping or changes in materials and texture. Crosswalks may be elevated slightly above the adjacent road grade where traffic calming is appropriate. Crosswalks at locations other than intersections are prohibited unless they implement a route identified on the Trails and Pathways Master Plan¹.

Drainage:

Where grades and available right of way will permit, every effort shall be made to retain open, natural drainage along the edge of the road. Existing narrow, deep ditches will be transformed into shallower, wide vegetated swales where practicable. When constructed as part of a development's frontage improvements, additional right of way or drainage easements may be required to implement this objective.

Culverts:

Roadside culverts shall be designed to convey the flow from the upstream basin at full development. A 25-year frequency storm event shall be considered as the minimum design storm when sizing drainage facilities. Design procedures shall follow those prescribed by the Oregon Department of Transportation Hydraulics Manual, current edition.

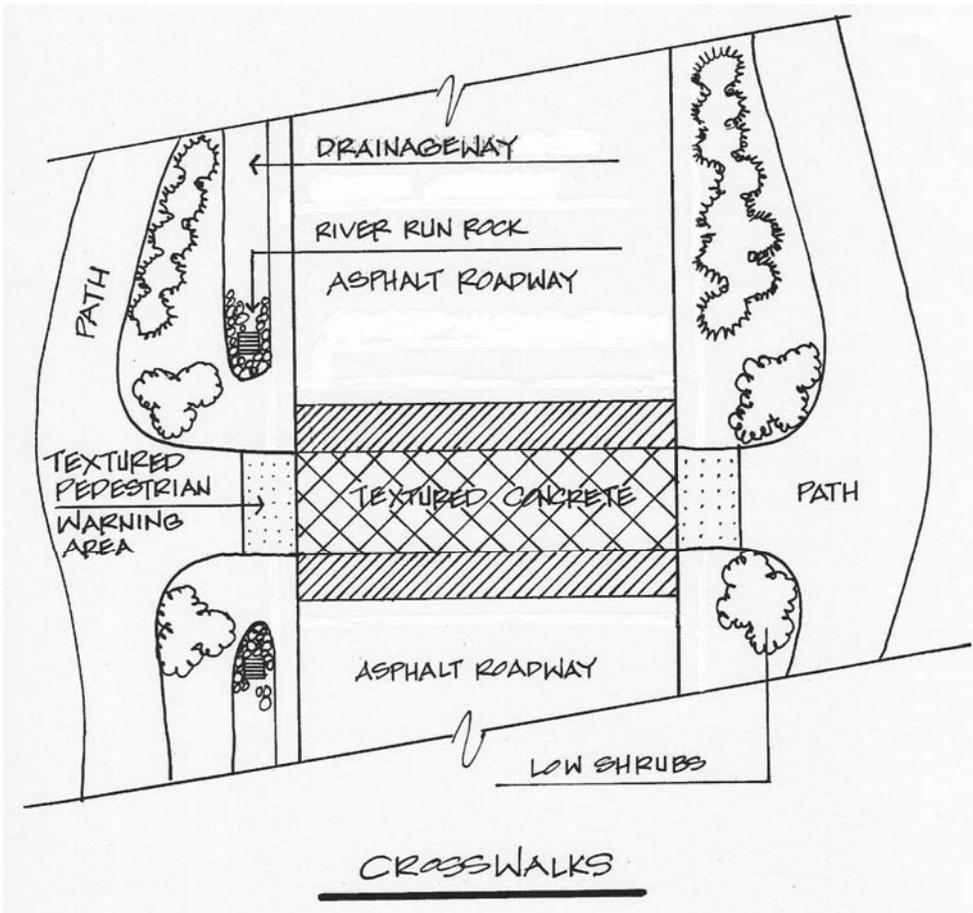
Geometric Design:

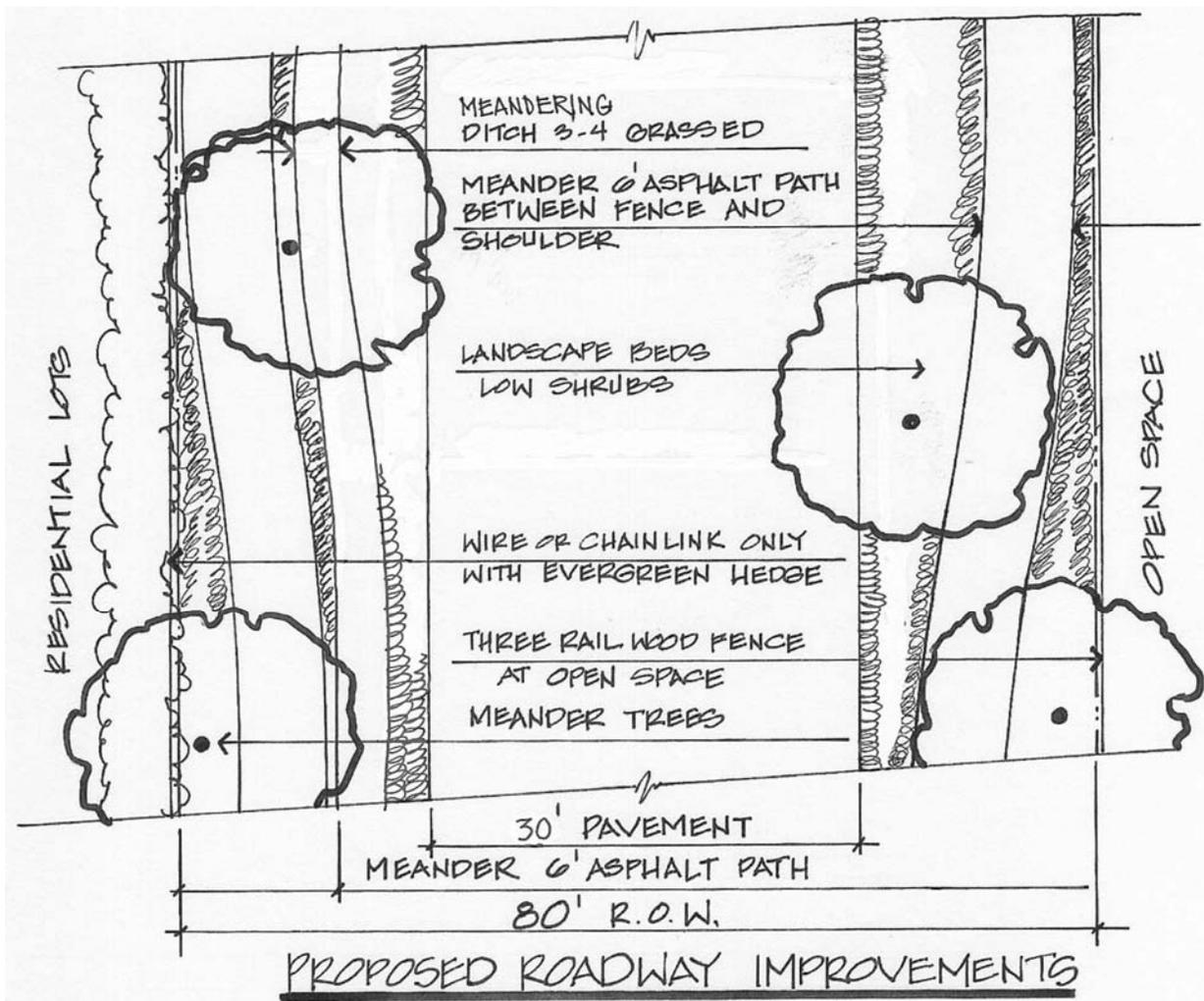
New roads within a development shall be designed with the intent to preserve the natural lay of the land, and shall not exceed 15% grade. However, new intersections may require the modification of an existing road grade to achieve safe intersection stopping sight distance. Public safety will remain the paramount criterion in evaluating the geometric design of a new roadways and intersections.

Driveway approaches:

Wide driveway approaches are inconsistent with the objectives of maintaining a rural neighborhood character. New residential driveway approaches in the right of way shall be paved, and shall be limited to 16 feet wide, irrespective of the number of garage doors facing the street. An exception allowing a wider driveway approach may be allowed if the fire marshal determines that a proposed driveway must serve as a two-way "fire apparatus access road" as defined in the adopted fire code and its local amendments. Any exceptions to this standard shall mitigate the appearance of wide pavement by incorporating vegetated strips between the wheel runways, cellular "grasscrete"-like material, or similar design elements.

¹ Lake Oswego Trails and Pathways Master Plan, Adopted June 17, 2003





Note: The above dimensions represent an idealized version of a major collector with dedicated bike lanes. It is not intended to mandate a particular right of way or pavement width.

Material specifications

Trees

New plantings should follow the character and structure of the predominant native trees of our area. These trees, like the Big Leaf Maple, Red Alder, Oregon Ash, Poplar, Vine Maple, Douglas Hawthorn, Hazelnut, Mazard Cherry, various willow species, Douglas fir and Western Red Cedar are not necessarily the most appropriate trees for new landscape plantings along an urban/rural transition streetscape. However, there are similar trees that are aesthetically pleasing, that have similar or more desirable characteristics (more upright, less invasive surface roots, stronger branching, less debris and litter), and that have equal ecological values. Some recommended species are:

Amur Maple	<i>Acer ginnala</i>
Sugar Maple	<i>Acer saccharum</i>
Oregon White Oak	<i>Quercus garryana</i>
American Ash	<i>Fraxinus Americana</i> 'Autumn Purple'
Green Ash	<i>Fraxinus pennsylvanica</i> 'Summit'

All trees and shrubs with red, bronze, or variegated foliage during the growing season are discouraged as these do not naturally occur in our native trees, but the species listed above do provide brilliant fall foliage. Trees planted near walking surfaces should be selected from among those that do not produce messy fruit, nuts, or seed pods, as this vegetative debris can contribute to a hazardous condition for pedestrians and bikes. Non-fruit bearing horticulturally produced males of certain species may be used in such locations. However, in natural areas or other non-pathway areas, trees and shrubs should be selected for their ability to provide a food source for wildlife. Trees are to be planted in irregular spacing and groupings where possible, creating varying enclosure and opening sequences in the tree canopy.

Shrubs and groundcover

Existing native shrubs are typically deciduous with the exception of Oregon grape, salal, rhododendron, and western sword fern. Most of these shrubs naturally occur as a forest understory and are not the most suitable in designed open spaces and streetscapes. They have their place, however, along the streetscape where the particular growing conditions are favorable, as along a creek bank.

Along the more designed streetscapes, use predominantly evergreen shrubs and groundcovers to produce an aesthetically pleasing panorama through the seasons. Avoid plants with red, bronze, or variegated foliage during the growing season, and those with conspicuously large flower balls. Many of the following plants have excellent fall foliage color and spring flowers:

Serviceberry	<i>Amelanchier alnifolia</i>
Kinnikinnick	<i>Arctostaphylos uva-ursi</i>
Rock Rose	<i>Cistus</i>
Red Twig Dogwood	<i>Cornus stolonifera</i>
Yellow Twig Dogwood	<i>Cornus flaviramea</i>
Fothergilla	<i>Fothergilla</i>
Salal	<i>Gaultheria shallon</i>
Creambush Oceanspray	<i>Holodiscus discolor</i>
Oregon Grape	<i>Mahonia aquifolium</i>
Low Oregon Grape	<i>Mahonia aquifolium repens</i>
Boston Ivy –on walls only	<i>Parthenocissus tricuspidata</i> (no <i>Hedera helix</i>)
Oregon Boxwood	<i>Paxistima myrsinites</i>
Mock Orange	<i>Philadelphus lewisii</i>
Western Sword Fern	<i>Polystichum munitum</i>
Pacific Ninebark	<i>Physocarpus captaus</i>
Winterflowering Current	<i>Ribes sanguinum</i>
Dwarf Blue Arctic Willow	<i>Salix purpurea nana</i>
Douglas Spirea	<i>Spirea douglasii</i>
Evergreen Huckleberry	<i>Vaccinium ovatum</i>

Plantings are to be massed in informal groupings with care in selection and placement of taller shrubs in the area between the pathway and the road to avoid vision obstructions near crosswalks. To maintain pedestrian safety and security, the mature height of shrubbery located between the edge of the

road and the pathway should not exceed 3 feet above the plane between the edge of the road and the edge of the pathway.

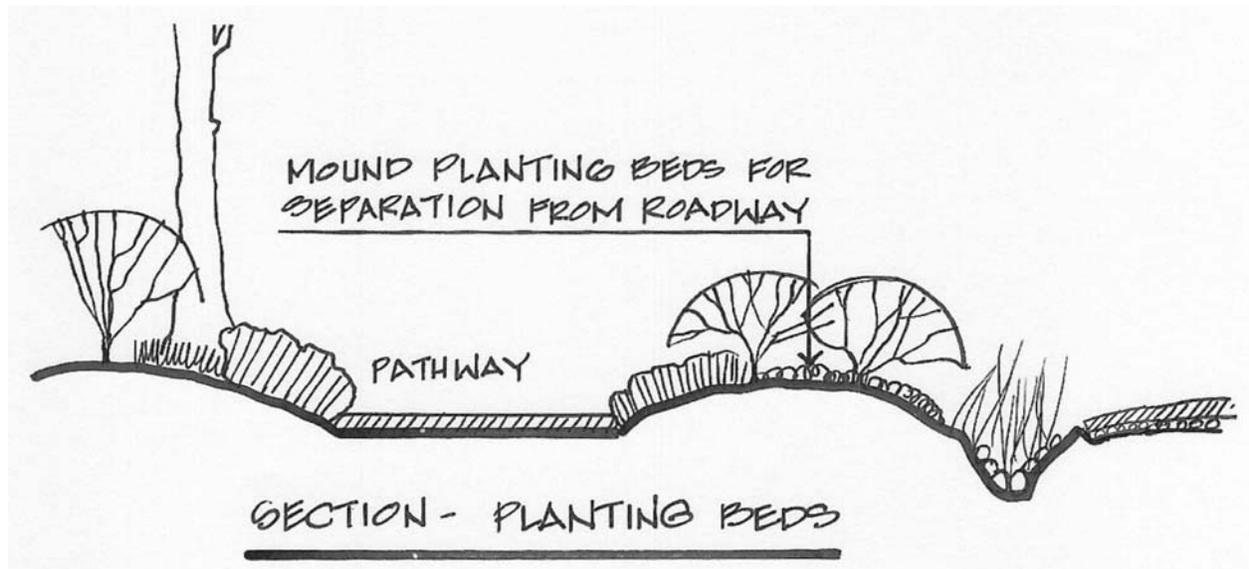
Hedge Materials

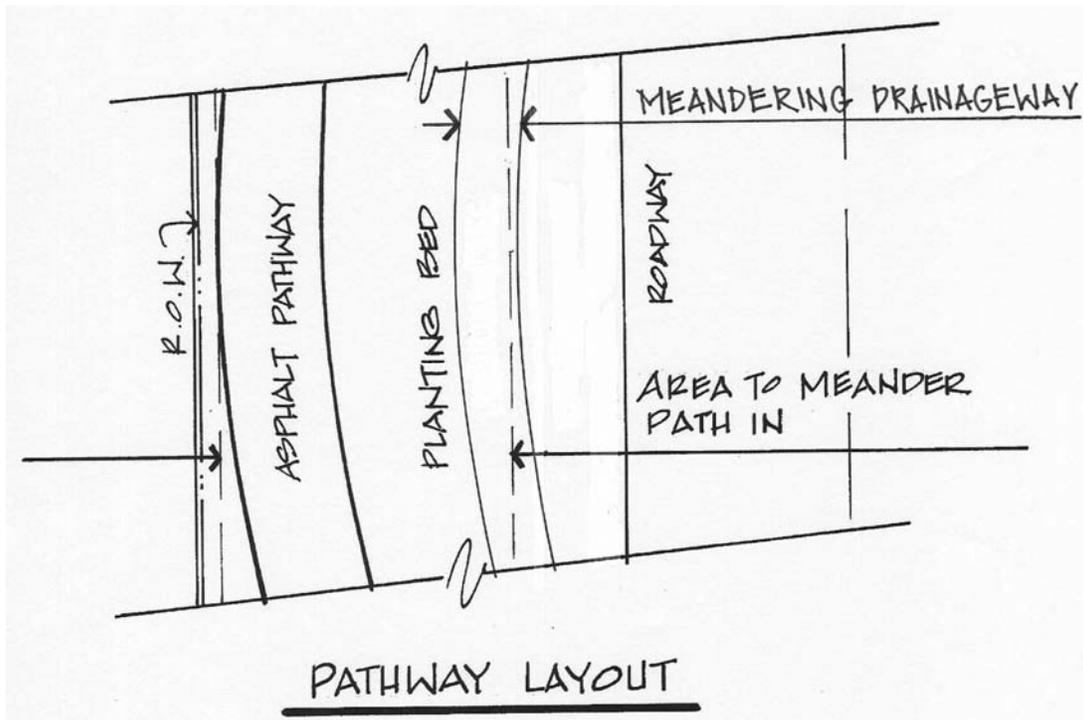
Evergreen hedges rather than solid fences are encouraged to define separation of residential yards from the public right of way. Vertical growing shrubs with thorns or prickly foliage are encouraged and may be incorporated with a woven wire fence for further security. The following are recommended species:

Strawberry Madrone	<i>Arbutus unedo</i>
Warty Barberry	<i>Berberis</i>
Burford Holly	<i>Ilex cornuta 'Burfordii'</i>
'Blue Boy/Girl' Holly	<i>Ilex x meservea 'Blue Boy/Girl'</i>
Holly Osmanthus	<i>Heterophyllum illicifolius</i>
Pacific Wax Myrtle	<i>Myrica californica</i>
Firethorn	<i>Pyracantha</i>

Planting Beds

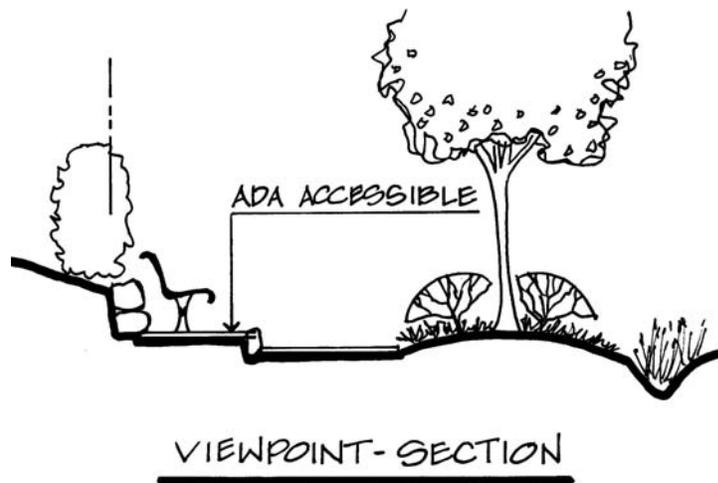
Where possible, beds are to be mounded with slopes of 5H:1V to create a soft landscape form and to increase the separation between pathway and roadway.

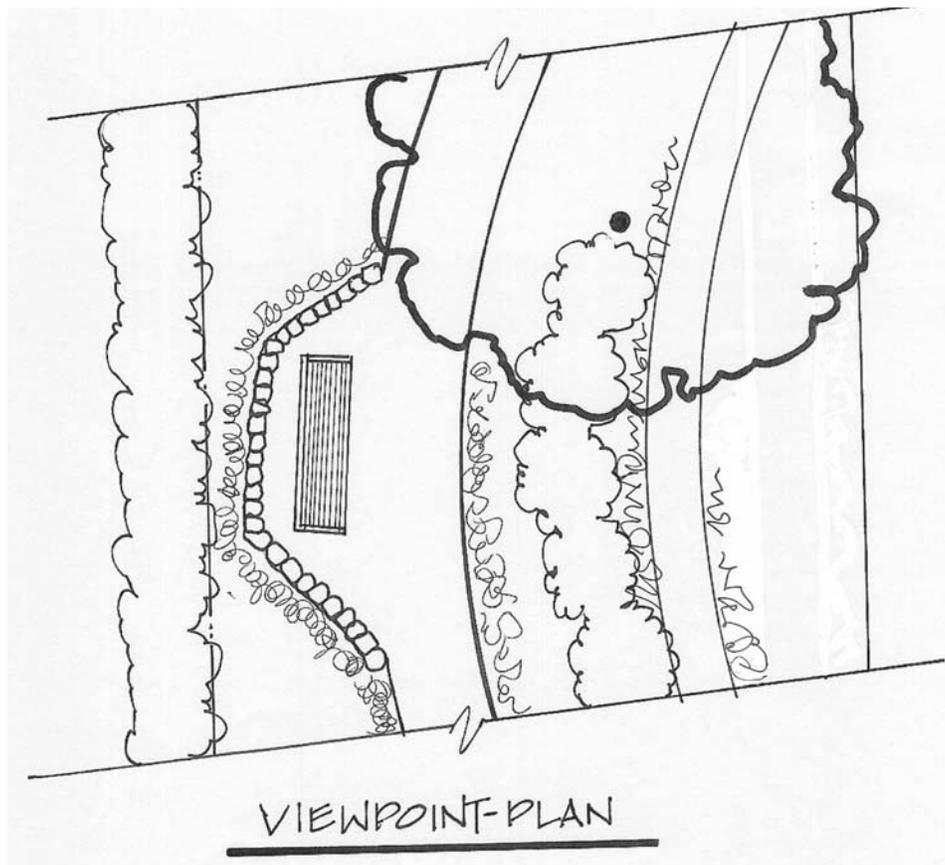




Benches and Viewpoints

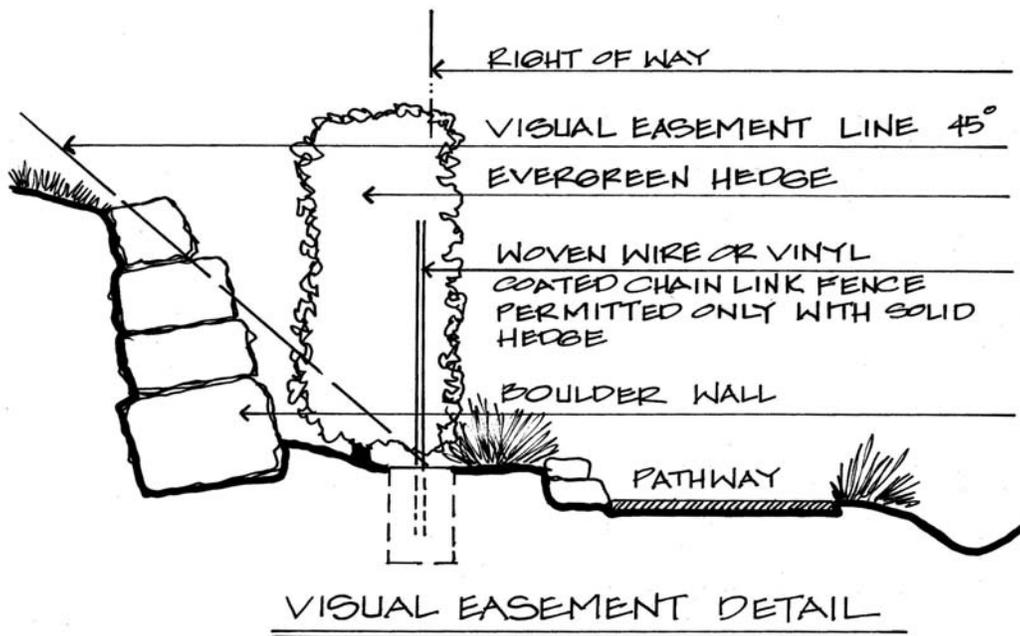
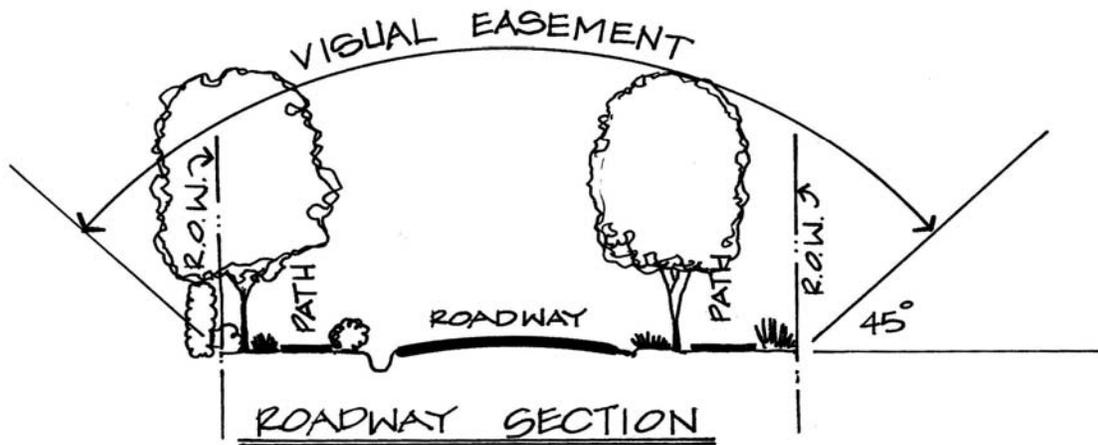
Viewpoints are to be located where space permits additional pavement width off the pathway and where topography and vegetation allow a distant view. Benches are to be of wood or recycled material in wood tones. All such areas shall comply with ADA standards.





Fences

Solid fences along the street are to be avoided. Instead, ‘green walls’ created by evergreen hedge materials are encouraged. In order to secure the adjacent residential yards, woven wire fences of either vinyl coated chain link or galvanized woven wire on wood posts or powder coated round metal posts are permitted, but only when the fence will be obscured by plantings of evergreen hedge materials that will grow through the fence. To prevent the creation of a canyon-like walled corridor, the City may impose the creation of a “visual easement” as a condition of development approval. Solid fences will not be allowed in the Visual Easement area. White vinyl (or other plastic) fences, whether solid or rail, and exposed chain link or woven wire fences are prohibited. Where open space occurs next to the right-of-way, a three rail, whitewashed or stained natural wood fences are encouraged.



Changes of Grade

Due to the varying nature of the topography, it will often be necessary to regrade for pathway construction and residential lot development. Where slopes would exceed 3H:1V and a vertical reinforcement of grade change is necessary, it is to be accomplished with natural materials such as stone, boulder walls or treated wood. Poured in place concrete is permitted provided that the exposed side is finished with a stone veneer or high quality simulated stone material that is compatible with the natural surroundings. Where possible, undulate the wall line and plant vines and shrubs to cover and soften.

